What is claimed is:

1. A method of automatically focusing an imaging system on an object comprising:

using an image of the object created by the imaging system to determine an optimum focus position.

2. The method of Claim 1, wherein the optimum focus position is determined comprising:

computing an edge density of each image of a set of images of the object; and

using a focus position corresponding to an image of the set having a greatest computed edge density as the optimum focus position.

3. The method of Claim 1, wherein the optimum focus position is determined comprising:

applying a difference between a first focus position and a second focus position of the imaging system to a third focus position corresponding to the image of the object, such that the third focus position is adjusted to the optimum focus position, wherein the first focus position corresponds to a reference image of a typical object, and wherein the second focus position corresponds to an image of the typical object that closely matches the image of the object.

4. The method of Claim 1, wherein using an image automatically accounts for warpage in the object.

5. A method of automatically focusing an imaging system on an object comprising one or both of:

using a first focus position corresponding to an image of the object created by the imaging system that has a greatest edge density as an optimum focus position for the imaging system; and

adjusting a second focus position corresponding to an image of the object by a difference between focus positions for a reference image of a typical object and an image of the typical object that closely matches the image of the object, the typical

object representing a class of objects, the object being a member of the class, the imaging system creating the reference image and the closely matched image of the typical object.

6. The method of Claim 5, wherein using a first focus position comprises:

creating a set of images of the object at a plurality of different first focus positions using the imaging system, wherein each image in the set is created at a different one of the plurality of first focus positions, such that each image has an associated first focus position; and

computing a density of edges for each image in the set.

7. The method of Claim 5, wherein adjusting a second focus position comprises:

creating a set of images of the typical object using the imaging system, each image in the set being created at a different one of a plurality of focus positions;

selecting the reference image from the set of images for the typical object, the reference image having a reference focus position;

creating an image of the object at the second focus position using the imaging system;

comparing the image of the object to images in the set of images of the typical object to find a closest matching image, the closest matching image from the set having a comparison focus position; and

determining a change in the second focus position from the difference between the reference focus position and the comparison focus position, the change being applied to the second focus position, the applied change providing the optimum focus position for the imaging system to image the object.

8. The method of Claim 7, wherein the reference image is selected comprising:

computing a density of edges for each image in the set; and

choosing the image from the set having the greatest computed edge density as the reference image.

9. The method of Claim 5, wherein using a first focus position and adjusting a second focus position each automatically account for warpage of the object and the typical object.

10. A method of determining an optimum focus position of an imaging system comprising:

creating a set of images of an object at a plurality of different focus positions using the imaging system, wherein each image in the set is created at a different one of the plurality of focus positions, such that each image has an associated focus position;

computing a density of edges for each image in the set; and

determining the optimum focus position for the imaging system, the optimum focus position being the focus position associated with the image having a greatest computed edge density.

11. The method of Claim 10, wherein the computed edge density is a relative measure of edges in each of the images.

12. The method of Claim 10, wherein the edge density is computed using an edge density metric employing one of any gradient-based and any non-gradient-based edge detection and image processing methods

13. The method of Claim 12, wherein a smoothing filter is applied to the image prior to calculating gradients for the gradient-based edge detection.

14. The method of Claim 10, wherein the object is representative of a class of objects being imaged, the determined optimum focus position being a reference focus position for the representative object, and wherein the method further comprises:

creating an image of another object at an arbitrary focus position using the imaging system, the other object being a member of the class of objects;

comparing the image of the other object to images in the set of images of the representative object to find a closest matching image, the closest matching image from the set having an associated comparison focus position; and

determining a difference between the reference focus position and the comparison focus position and applying the difference to the arbitrary focus position to provide the optimum focus position for imaging the other object with the imaging system.

15. A method of determining a change in focus position of an imaging system comprising:

creating a set of images of a first object using the imaging system, each image in the set being created at a different one of a plurality of focus positions, such that each image has an associated focus position, the first object being representative of a class of objects;

selecting a reference image from the set of images of the first object, the selected reference image having an associated first focus position;

creating an image of a second object at a second focus position using the imaging system, the second object being a member of the class of objects;

comparing the image of the second object to images in the set of images of the first object to find a closest matching image, the closest matching image from the set having an associated third focus position; and

determining a change in the second focus position to provide an optimum focus position for imaging the second object with the imaging system.

16. The method of Claim 15, wherein the change is determined comprising:

determining a difference between the associated first focus position and the associated third focus position; and

adjusting the second focus position by the determined difference, the adjusted second focus position being the optimum focus position.

17. The method of Claim 15, wherein the reference image is selected automatically comprising:

computing a density of edges for each image in the set; and

choosing the image from the set having a greatest computed edge density as the reference image.

18. The method of Claim 15, wherein the reference image is selected manually by an operator.

19. The method of Claim 15, wherein comparing comprises using one or more of a sum of an absolute value of a difference between pixels, a sum of a square of the difference between pixels, and a cross correlation.

20. The method of Claim 19, wherein comparing using the cross correlation comprises filtering the image prior to computing a correlation.

21. An imaging system having automatic focusing comprising:

an imaging subsystem that images an object;

a memory;

a computer program stored in the memory; and

a controller that executes the computer program and controls the imaging subsystem, wherein the computer program comprises instructions that, when executed by the controller, implement using an image of the object created by the imaging system to determine an optimum focus position.

22. The imaging system of Claim 21, wherein the instructions that implement using the object image to determine the optimum focus position comprises one or both of:

using a first focus position corresponding to an image of the object created by the imaging system that has a greatest edge density as an optimum focus position for the imaging system; and

adjusting a second focus position corresponding to an image of the object by a difference between focus positions for a reference image of a typical object and an image of the typical object that closely matches the image of the object, the typical object representing a class of objects, the object being a member of the class, the imaging system creating the reference image and the closely matched image of the typical object.

23. The imaging system of Claim 21, wherein the instructions that implement using the object image to determine the optimum focus position comprise computing

an edge density of each image of a set of images of the object; and using a focus position corresponding to an image of the set having a greatest computed edge density as the optimum focus position.

24. The imaging system of Claim 21, wherein the instructions that implement using the object image to determine the optimum focus position comprise applying a difference between a first focus position and a second focus position of the imaging system to a third focus position corresponding to the image of the object, such that the third focus position is adjusted to the optimum focus position, wherein the first focus position corresponds to a reference image of a typical object, the second focus position corresponding to an image of the typical object that closely matches the image of the object, the typical object representing a class of objects, the object being imaged being a member of the class, the imaging system creating the reference image and the closely matched image of the typical object.

25. The imaging system of Claim 21 being an X-ray laminography system.

26. An imaging system with automatic focusing that images an object, the system having an imaging subsystem; a memory; and a controller that controls the imaging subsystem, the system comprising:

a computer program executed by one or both of the controller or an external processor, the computer program comprising instructions that, when executed, implement one or both of edge detection and image comparison of an image of the object created by the imaging system to determine an optimum focus position for imaging the object.

27. The imaging system of Claim 26, wherein the instructions of the computer program implement the edge detection of an image, the edge detection comprising computing an edge density of each image of a set of images of the object; and using a focus position corresponding to an image of the set having a greatest computed edge density as the optimum focus position.

28. The imaging system of Claim 26, wherein the instructions of the computer program implement the image comparison of an image, the image comparison

comprising adjusting a first focus position used to create the image of the object by a difference between a second focus position corresponding to a reference image of a typical object and a third focus position corresponding to an image of the typical object that closely matches the image of the object, the typical object representing a class of objects, the object being imaged being a member of the class, the imaging system further creating the reference image and the closely matched image of the typical object.

29. The imaging system of Claim 27, wherein the instructions further implement the image comparison, the image comparison comprising creating an image of another object at an arbitrary focus position using the imaging system, the object being representative of a class of objects, the other object being a member of the class of objects; comparing the image of the other object to images in the set of images of the representative object to find a closest matching image, the closest matching image from the set having an associated comparison focus position; determining a difference between the optimum focus position and the comparison focus position; and applying the difference to the arbitrary focus position to provide a focus position that is optimum for imaging the other object with the imaging system.

30. The imaging system of Claim 26, further comprising an inspection subsystem that provides object inspection.